Living on Master:

Using Yocto Project, Jenkins and LAVA for a rolling release

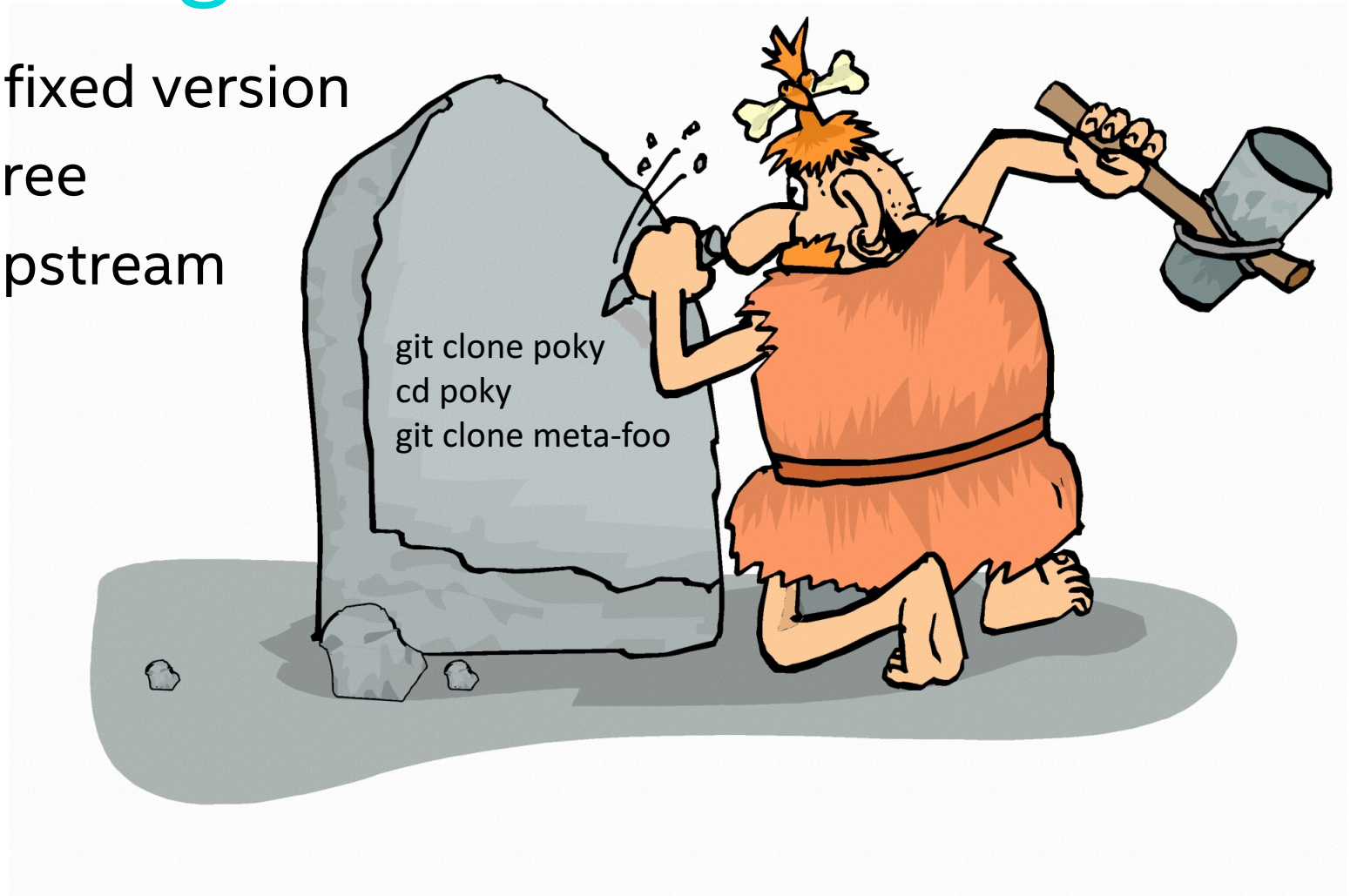
Tim Orling
Intel Open Source Technology Center

You’re doing it all wrong.

Here’s why.

Traditional Approach: "Fork It and Forget It"

- Pin upstream at a fixed version
- Make changes in tree
- No patches sent upstream



https://www.publicdomainpictures.net/view-image.php?image=168789&picture=cave-man-chiseling

Traditional Approach: "Fork It and Forget It"

- Obsolete from day one
- Upstream never stops
- Huge technical debt

https://www.publicdomainpictures.net/view-image.php?image=210256&picture=bison

Follow the Linux* kernel release model

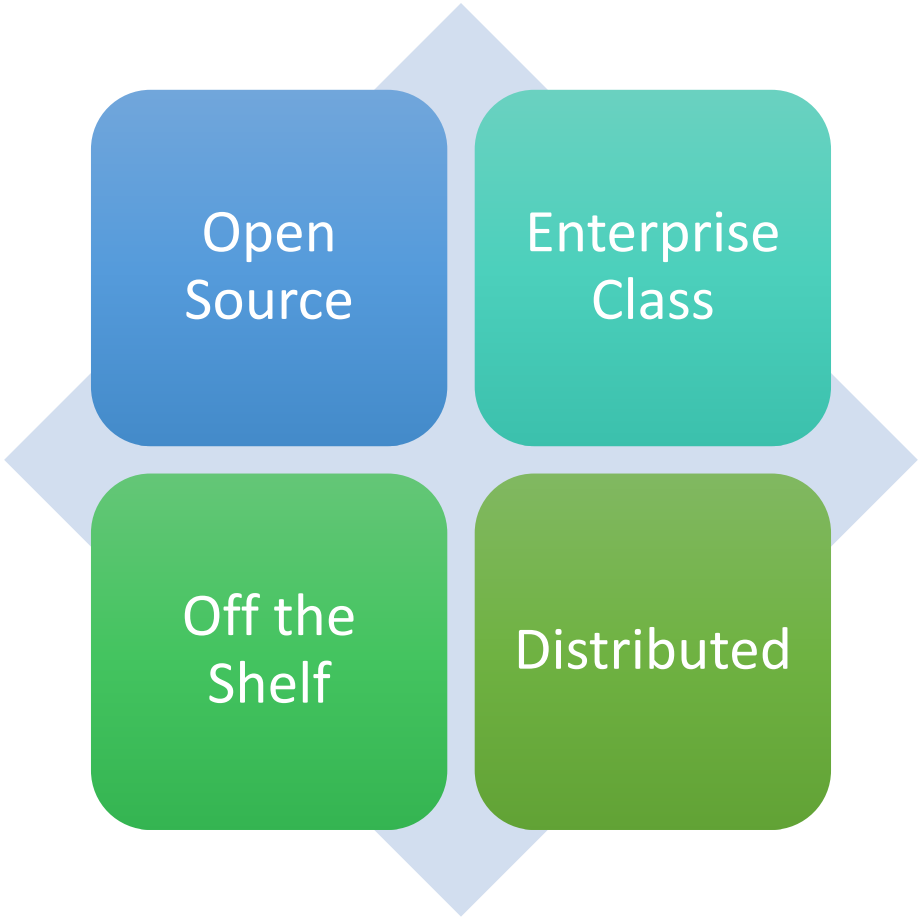
- http://www.kroah.com/log/blog/2018/02/05/linux-kernel-release-model/
- Upstream First
- Backport to stable branches
- Constantly moving code-base

http://blog.garagistry.com/2016/07/tour-rouge-for-trip-in-history.html

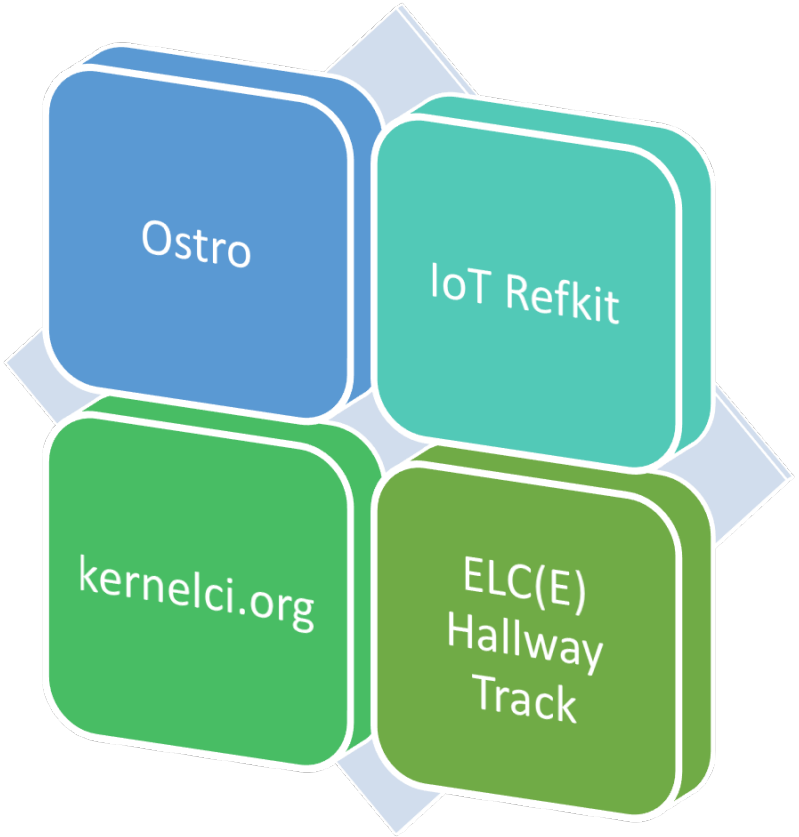
Everyone has their own solution

Time to share.

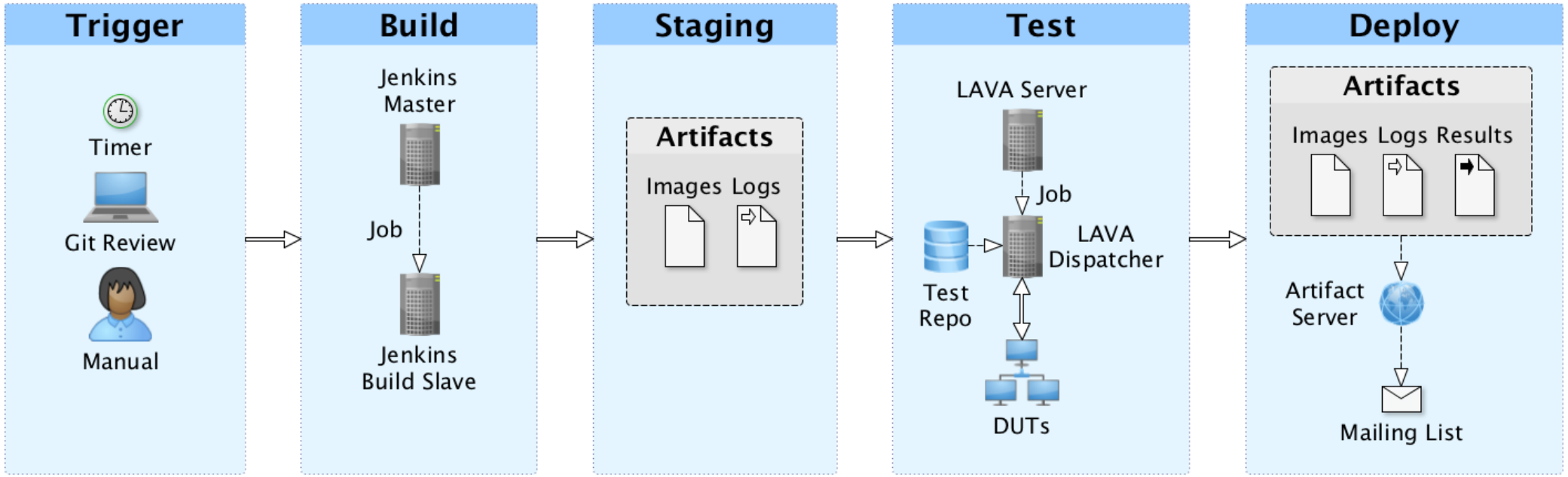
Motivations



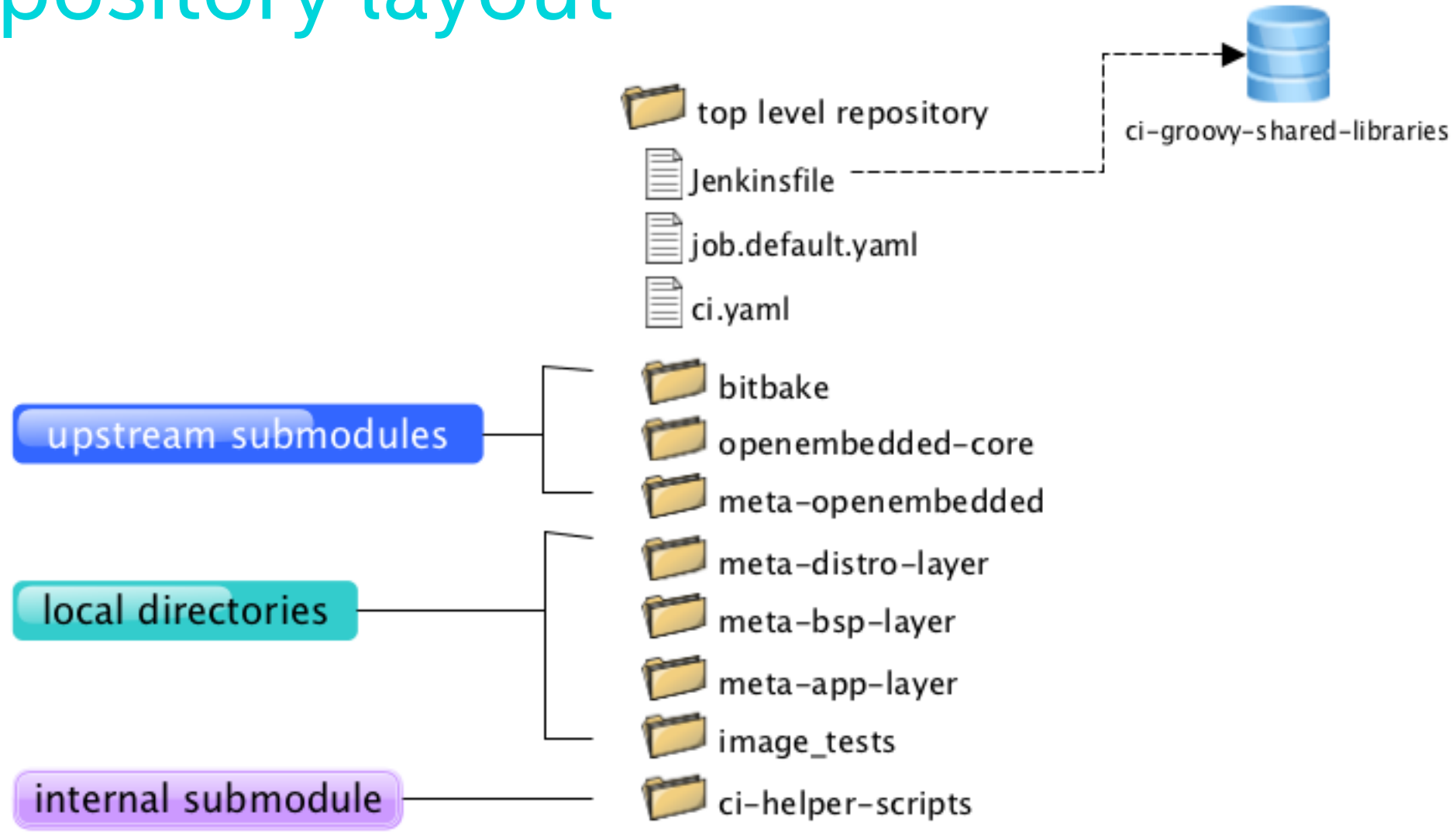
Inspirations



System overview



Repository layout

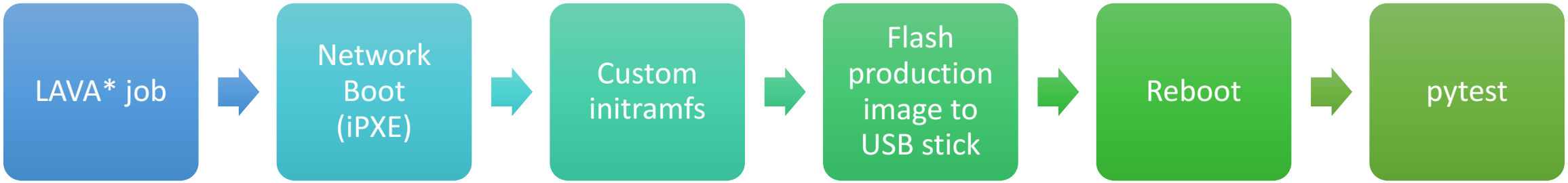


Use automation to stay up to date

- Continuous Integration job runs daily

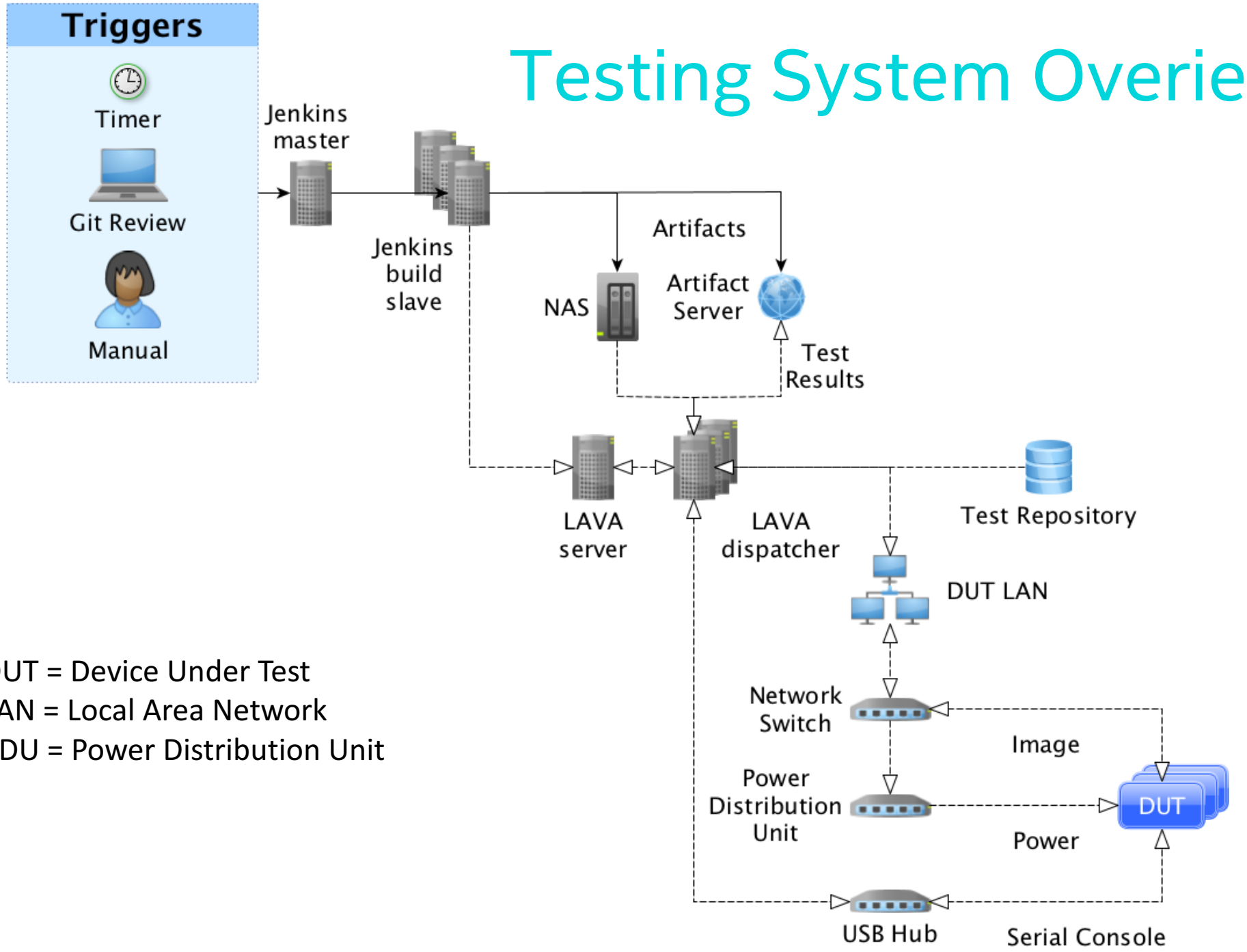
Testing production images

- Tests run on every build



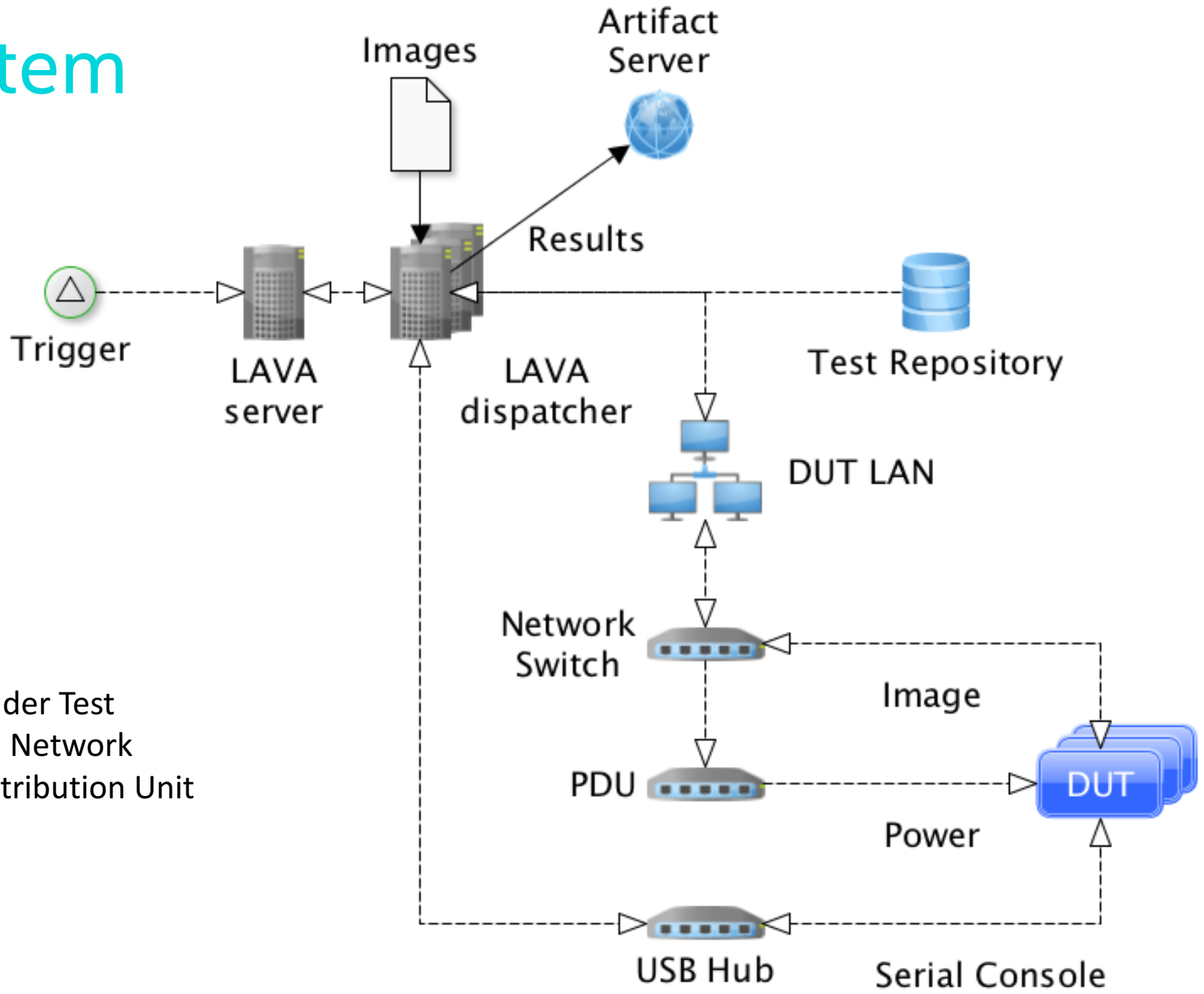
pytest is an Open Source testing framework

Testing System Overiew



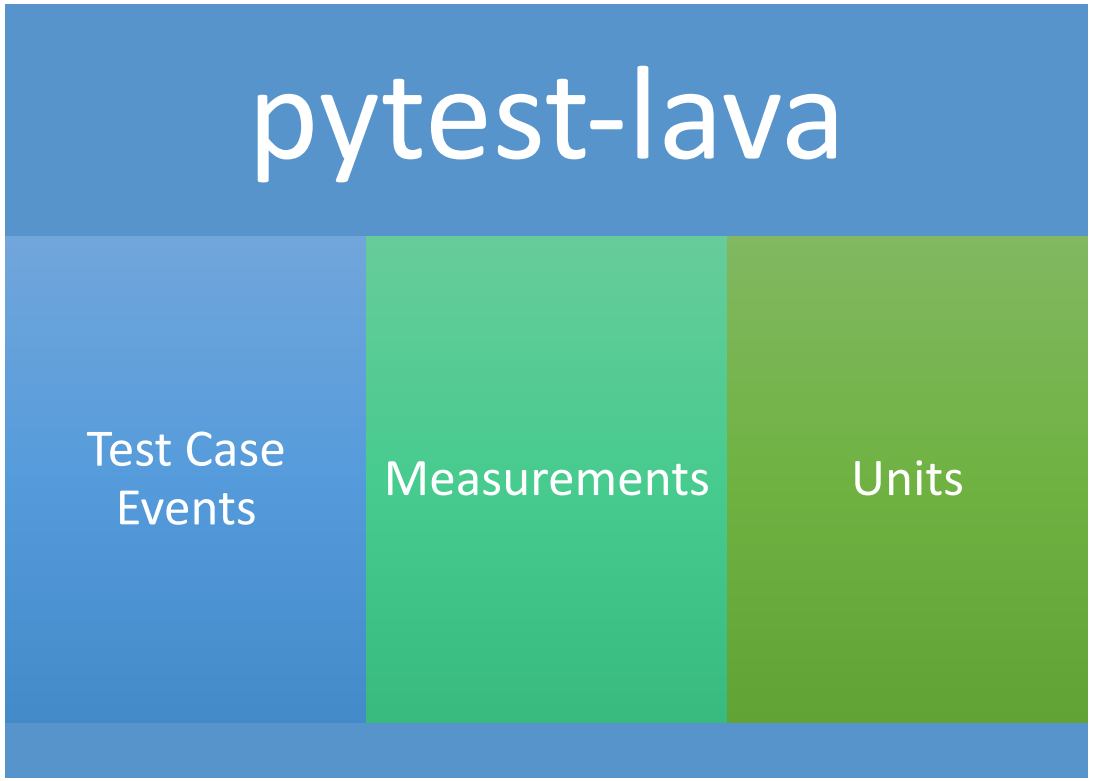
DUT = Device Under Test
LAN = Local Area Network
PDU = Power Distribution Unit

Testing System



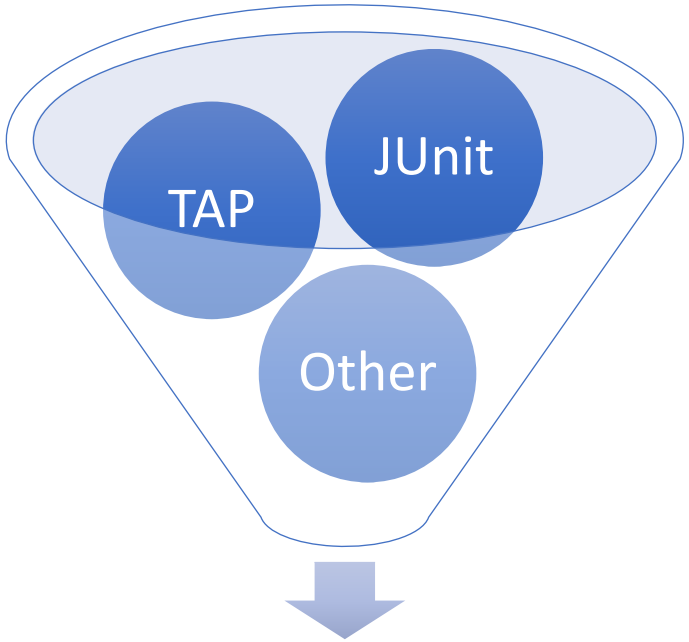
DUT = Device Under Test
LAN = Local Area Network
PDU = Power Distribution Unit

Next Steps



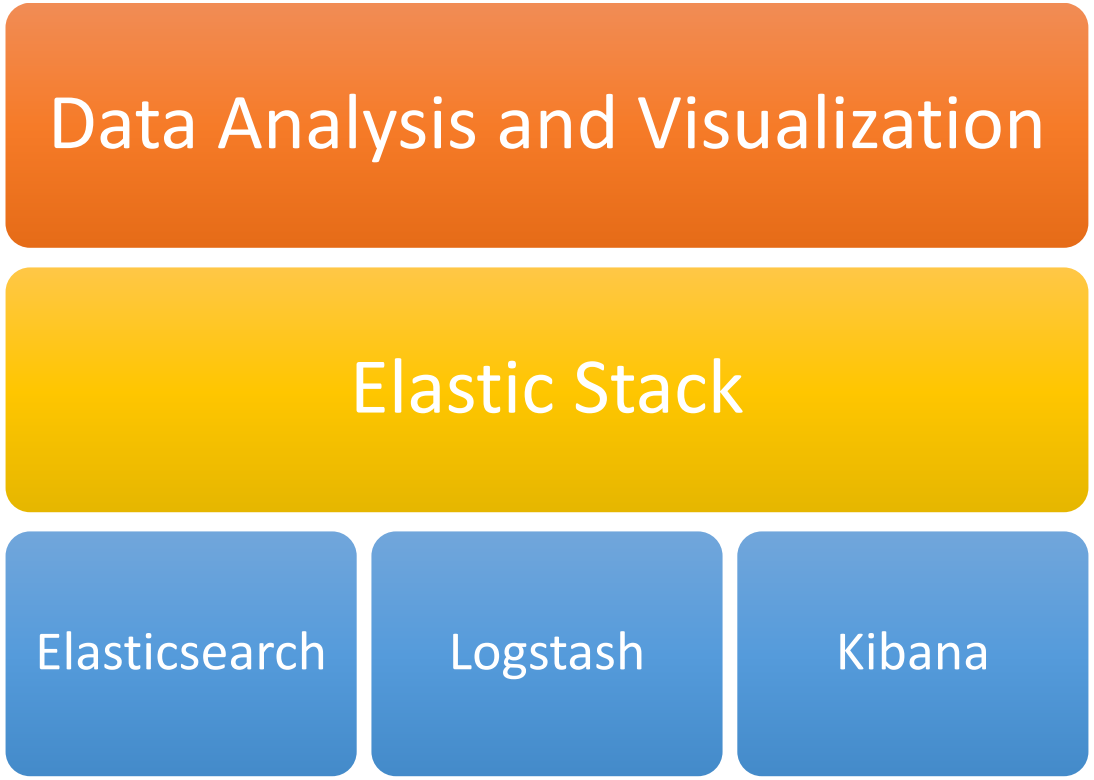
- Test Case events working well
- Measurements and Units under development
- Need to complete internal Open Sourcing process

Next Steps



- Industry Standard Result Formats
  - Test Anything Protocol
  - JUnit.xml

Next Steps


Data Analysis and Visualization
Elastic Stack
Elasticsearch
Logstash
Kibana

Let’s do this.

Moving forward.

Reference Enterprise Class System

End-to-End Complete

- Orchestrated containers?
  - “Easy” to deploy
  - “Effortless” to replicate
- Internal Layer Index
- Jenkins Master
- Artifact server
- Data Visualization

Public LAVA server

- Share and Re-use test definitions
- Distributed LAVA dispatchers
  - Containerized
  - Better HW coverage
    - Each site focuses on platforms they care about

Questions?

Reference

- https://validation.linaro.org
- https://github.com/Linaro/lava-server
- https://github.com/Linaro/lava-dispatcher
- https://pytest.org
- https://github.com/pytest-dev
- https://git.linaro.org/lava-team/refactoring.git/
- https://kernelci.org
- https://jenkins.io
- https://www.elastic.co/
- https://lists.yoctoproject.org/listinfo/automated-testing

Thank you.

Special Thanks to:

- John Akre
- Kevron Rees
- Randy Witt
- Brian Avery
- Stephano Cetola